SITE NUMBER: B-R3-01
LOCAL NAME: Wilson Springs
WRIA: 20.0173F

NORTH COAST OFF CHANNEL SITE INVENTORY DATA

RIVER SYSTEM: Bogachiel **DATE:** 12/21/88 **OBSERVER:** Nettnin

CHANNEL TYPE: Terrace tributary (wall-based)

TRIBUTARY TO: Bogachiel R. - 20.0162

SITE LOCATION: R.B. @ River mile - 6.2 (WDF)

LEGAL DESCRIPTION: NE1/4 S22 T28N R14W

	UPPER END	LOWER END	RIVER TEMP
WATER TEMP:	44 F	48 F	42F
FLOW (CFS):	< 0.1	3 - 5	

SUBSTRATE TYPE: Mostly sand and silt except for a 60 m section of sandy gravel just downstream of the large culvert.

SITE SIZE: **Length**- 500 m
Width- Surface = 3 - 10 ft (excluding pond)
Channel = 10 - 12 ft (excluding pond)
Depth- 18 inch maximum (excluding pond)

WATER SOURCE: Numerous large springs from the base of the terrace.

DIRECTIONS TO SITE: Head north from Forks on Hwy 101. Turn left just beyond m.p. 193 (1.0 mile north of Forks) onto the La Push Rd. Proceed west on the La Push Rd 5.0 miles then turn left onto the G-3000 Rd (ITT Rayonier). Follow the G-3000 approx. 0.3 miles until coming to large gravel pit to the west. Continue past the pit some 200 to 300 ft. B-R3-01 is due south of the road at the bottom of the terrace. B-R3-01 is also accessible via the Wilson Rd. (see channel map).

FISH ACCESS AND CURRENT USE: Fish appear to have unrestricted access from the mouth of B-R3-01 up to the large culvert at the road crossing (i.e. the lower 170 m). This culvert and a beaver dam immediately upstream appear to greatly restrict or even prohibit the upstream movement of juvenile coho (see comments). A few fish were seen above this point, however.

FLOODING POTENTIAL: Low.

LANDOWNER: William Ritzenthaler.

COMMENTS & RECOMMENDATIONS: With the great profusion of springs along its mid and upper reaches, B-R3-01 appears to offer excellent coho winter rearing potential. If the springs do not go dry, B-R3-01 should also provide a high quality summer rearing area. A limited amount of spawning area may also be utilized.

A 40 ft long, 3ft diameter, CMP culvert with a water velocity of 1 to 2 ft/sec and a 6 to 12 inch plunge at the lower end, is located some 170 m above the mouth of the channel.

This culvert appears to create a velocity barrier to up-migrating juvenile coho. A 3 to 4 ft high beaver dam, just upstream of the culvert, further reduces the chances that fish will be able to move into the excellent rearing area in the mid and upper reaches of B-R3-01. Despite these apparent barriers, however, a few unidentified fish were seen swimming in the ponded areas upstream.

A series of small beaver ponds are seen in the upper reaches of the channel (i.e. upstream of the large pond). These ponds range from 6 to 12 ft in width and 1 to 2 ft maximum depth.

A residence is located along the left bank of B-R3-01 near the lower end of the large pond. This residence appears to be a summer home.

The proper installation of a control structure downstream of the culvert could reduce the water velocity through the culvert and increase fish access to the rearing areas in the mid and upper reaches of the channel. Installation of additional controls at 50 ft intervals along the entire lower reach of B-R3-01 could be benefit and increase the useable spawning habitat. The beaver dam upstream of the culvert should be replaced with a more stable structure and fishway. May also want to add rootwads and other LOD along the mid and upper reaches to provide increased cover. Need to set minnow traps to determine present utilization and identify fish that were seen in the pond. Check summer flows to determine summer rearing potential.

POND NAME: Wilson Springs Pond **POND DATA SUPPLEMENT**

DATE: 12/21/88 **OBSERVER:** Nettnin

	INLET	OUTLET
WATER TEMPERATURE: Springs	48 F	48 F

POND SIZE:

LENGTH - 340 m
WIDTH - Avg. = 3 to 4 m
EST. MAXIMUM DEPTH - > 3ft

WATER SOURCE: Numerous, profuse springs from along the base of the terrace wall on the right bank of the channel.

FISH ACCESS & CURRENT USE: Fish access into this pond appears greatly restricted by high velocity flows through a large culvert and a 3 to 4 ft beaver dam just upstream of the culvert (see comments in main write up). Unidentified fish were seen swimming in the pond, however.

TYPE & AMOUNT OF IN POND COVER: Some LOD is present. Overhanging bank also provides some cover. In many places water depth appears to provide primary cover. The water is extremely clear. More LOD might be desireable.

COMMENTS & RECOMMENDATIONS: The ponded area of channel B-R3-01 is really a series of adjoining beaver ponds. It appears to offer excellent overwintering habitat and may also provide an important summer rearing area.

A series of smaller beaver ponds at the upper end of B-R3-01 are 2 to 4 m wide and 0.5 m deep. The large main pond is up to 15 m wide and has a maximum depth of 1 to 1.5 m.

The addition of root wads, LOD and other cover structures in the pond could be beneficial. Improvements below the culvert have already been discussed. Need to minnow trap here to determine extent of current utilization and verify the identity of fish that were seen.

DATE: 2/10/89
Water temperature at outlet of culvert was 47 F

DATE: 2/14/89
Set three minnow traps along channel B-R3-01. Trap #1 was set along the right bank of the channel and just downstream of the large culvert. Trap #2 was set along the left bank of the main pond a short distance above the beaver dam and culvert. Trap #3 was set near the upper end of the channel (see attached map for approximate trap locations). All traps were baited with salmon roe which was placed loose inside the traps. All traps were set on or near the bottom and under woody debris.

DATE: 2/16/89
Fished minnow traps that were set on 2-14-89 (see above). Trap #1 caught 15 juvenile coho and 3 sculpins. Coho ranged in size from 65 to 100 mm. Trap #2 contained 5 coho and 1 sculpin. These coho ranged from 70 to 100 mm. Trap #3 captured 3 coho, which ranged from 80 to 90 mm in length, and 7 sculpins.

The culvert and beaver dam were thought to be immpassable to upmigrating juvenile coho. However, fish were caught upstream of these barriers. The large number of fish caught downstream of the culvert (i.e. in trap #1) may still indicate that fish are being stopped by the culvert. Fish in the pond and upper channel either made it through the culvert at a period of ideal conditions, were planted in the pond, or are the result of adults spawning above the barriers.

DATE: 5/10/89
These observations were made during an extended dry period. There has been no significant rainfall since early April. Flows were estimated at 2 to 3 cfs at the downstream end of the culvert. Water temperature here was 49.5 F.

There was still a small amount of water perking in at the uppermost springs. Pond level and flow from the numerous right bank springs have diminished considerably since last observation, but are still very healthy considering the current dry spell. All inflowing spring water was at 49 F.

DATE: 8/2/89 **OBSERVER:** Young
Observed flow and water temps at Wilson Springs. Results are listed below:

Est. flow : 0.5 - 1.0 cfs
Water temp : 10 C
River temp (Wilson boat launch) : 15 C
Air temp (mid-afternoon) : 20 C

DATE: 8/28/89
Water temp. at culvert = 52°.
D.O. = 11.0ppm

DATE: 9/26/89
Still has a good flow through the culvert. Pond level is dropping.

DATE: 11/15/89 **OBSERVER:** Young,Nettnin
No fish observed above culvert. One or two fish were observed jumping at lower end of the culvert. It appears that water from the very high freshet of early Nov. did not reached the culvert (no silt or other high water indicators).

Est. flow : 2-4 cfs
Water temp : 48 F.
River temp (Wilson boat launch) : 45 F.

DATE: 11/22/89
Shot levels of culvert and surrounding area for potential project in 1990.

DATE: 2/27/90
Installed coho smolt trap to monitor spring outmigration (see trapping data for results).

DATE: 3/1/90 **OBSERVER:** Young
Visited site to inspect the smolt trap that was installed during the last week of February. It has been wetter than normal in January and February but there has been no rain in the last week. The water temp was 9 C at the lower end of the culvert. A stick dropped in the water at the upper end of the culvert took 13.5 seconds to reach the lower end. Assuming the culvert is 60 ft long gives a water velocity of 4.4 ft/sec. The avg. water depth in the culvert was about 0.75 ft and the avg. water width was about 2.75 ft. Using these numbers gives an estimated flow of just over 9 cfs.

DATE: 8/5 - 9/30/90 **OBSERVER:** King, Young, Nettnin
The existing culvert under the drive was to small to allow for fish passage so it was replaced with a larger baffled culvert. A concrete structure with a trash rack was built at the inlet end. All of the disturbed ground seeded with grass and the slopes were planted to native vegetation. freshet occurred during the revegetation phase of the project. It was observed at that time that the Bogachiel river does backwater the springs during flood conditions.

DATE: 10/4/94 **OBSERVER:** Darrow
Some smaller limbs and sticks have drifted in and around bars at outlet control at upper end of culvert; Nothing that will inhibit fish passage. Status - fine for now. Three salmonids observed in pond. 7" - 10" cutts.

DATE: 10/27/94 **OBSERVER:** King
Culvert baffles are all clear and flowing. Flow needs to come up more before fish can access the pond. Channel below culvert is very shallow and braided. Juveniles seen in pond and in outlet channel.

DATE: 3/16/95 **OBSERVER:** Darrow
Bars at fishway have a light surface accumulation of small limbs/sticks, and alder catkins but pose no passage problem. Culvert had a strong flow with water several (4 - 5 inches) deep over baffle weirs. All notched inserts appeared to be in place. Healthy outflow inhibited a walk through check. Observed two 8 - 10 inch fish (trout) dart upstream in pond as I approached.

DATE: 11/20/95 **OBSERVER:** Darrow
Cleared debris from grate at upper end of culvert; some were beaver cutting but it was mostly limbs and leaves. Clearing the debris from the grate caused an increase outflow which enticed upstsream moving salmonids (trout, 130 - 170 mm) to enter culvert. The pond contained ~400-500 trout which are assumed to be hatchery steelhead which escaped the rearing facility during the last flood. Tall Timbers and Calawah Sp. also recieved some escapees. Coho juveniles were also observed.

DATE: 4/9/96 **OBSERVER:** Powell
Beaver had trash grate plugged with debris; it is uncertain if it was passable. We will have to go in again to clean out baffles due to dislodging debris off of grate but they appeared passable. Coho and trout were observed in the lower end of the channel. We will moniter this site for beaver activity.

DATE: 10/30/96 **OBSERVER:** Darrow
Substantial beaver activity at culvert grate. Eighty-five percent of the beaver dam was dismantled on this date. Camp crew removed a substantial amount this summer, and Theresa periodically checked and cleaned afterwards. This will be an on going check spot since the pond is too deep to install a debris fence. RD states that 35 -40% of small alder near the pond outlet has been removed by the beaver. Trout were observed swimming and fish were rising in the pond.

DATE: 4/1/97 **OBSERVER:** Darrow
Beaver dam plus some larger pieces of windfall on culvert grate were removed. Many large alders along channel, below culvert, have fallen due to storms this winter - upturned roots are providing some cover. Observed a school of 30-40 coho in lower section of pond.

DATE: 10/9/97 **OBSERVER:** King
The beaver has been active. The dam was lowered enough to pass fish but will need more attention.

DATE: 10/97 **OBSERVER:** Darrow
Cleared all beaver debris from grate. This site has been routinely monitoring - there has been no new beaver debris.

DATE: 3/10/98 **OBSERVER:** Darrow
Grate was relatively debris free. When flow drops, the baffles inside the culvert will need to be cleaned of debris. Observed coho and trout in pond, above grate

DATE: 10/26/98 **OBSERVER:** Darrow
The pond was low at the time of inspection. A small mud and stick dam was built up against the grate gate. I cleared about eighty percent of it. Culvert baffles appeared clear and unrestricted at this time. A couple small salmonids were observed in the pond.

DATE: 4/11/99 **OBSERVER:** Darrow
Baver and drift debris against grates. This site will need periodic checking during downstream migration. Observed some trout and presmolts in the lower pond.

DATE: 10/27/99 **OBSERVER:** Nettnin
Usual beaver debris on grates. Number 7 baffle in culvert was full of debris from periodic dam removal. Removed the debris. Site will need to be checked on a regular basis.

DATE: 4/8/00 **OBSERVER:** Darrow
Debris on the grate was not a fish passage problem at this time. Did remove some material away from the grate. Baffles in the culvert looked primarily clear. Observed some smolts and trout in the lower end of the pond.

DATE: 9/16/00 **OBSERVER:** Darrow
DNR Camp Crew was utilized to clear the accumulated beaver debris from grates and baffles. All looked fine after the cleaning.

DATE: 4/17/01 **OBSERVER:** Darrow
Grates had debris piled about 1.5 feet high from beaver activity and drift. It was not a problem for any downstream migrating fish but it would have impeded immigrants. Observed a few salmonids swimming in the pond. This site received a tote of coho carcasses from the Sol Duc Hatchery for nutrient enrichment.

DATE: 10/23/01 **OBSERVER:** Darrow
Cleared the accumulated beaver debris away from the grates. Baffles and bays in the culvert were clear. Everything else appeared okay.

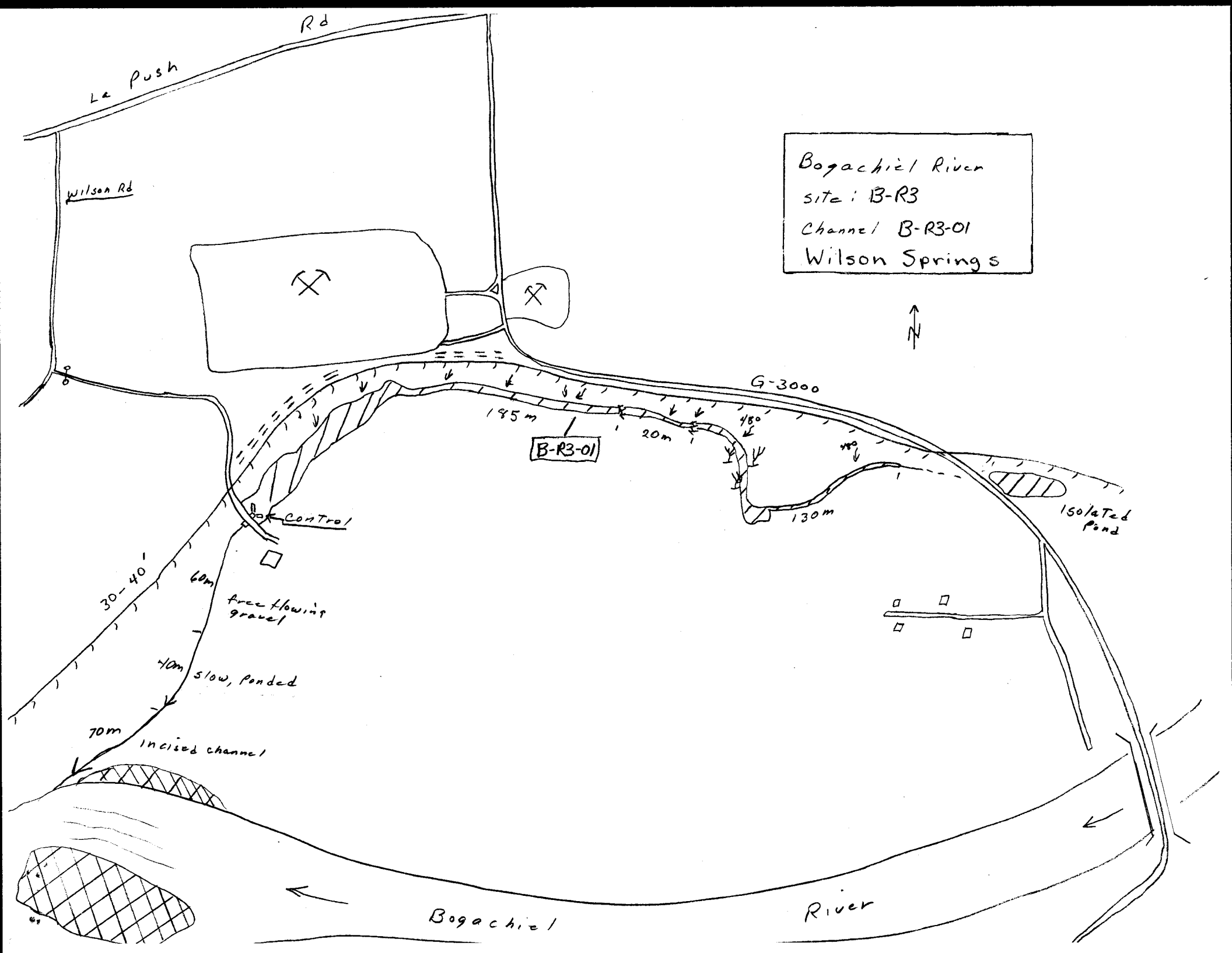
DATE: 4/29/02 **OBSERVER:** Darrow
Culvert grate and baffles had minor amount of debris. It appears that the landowner removed some of the larger debris that had floated down to the grate. A few coho smolts and trout were observed near the outlet area.

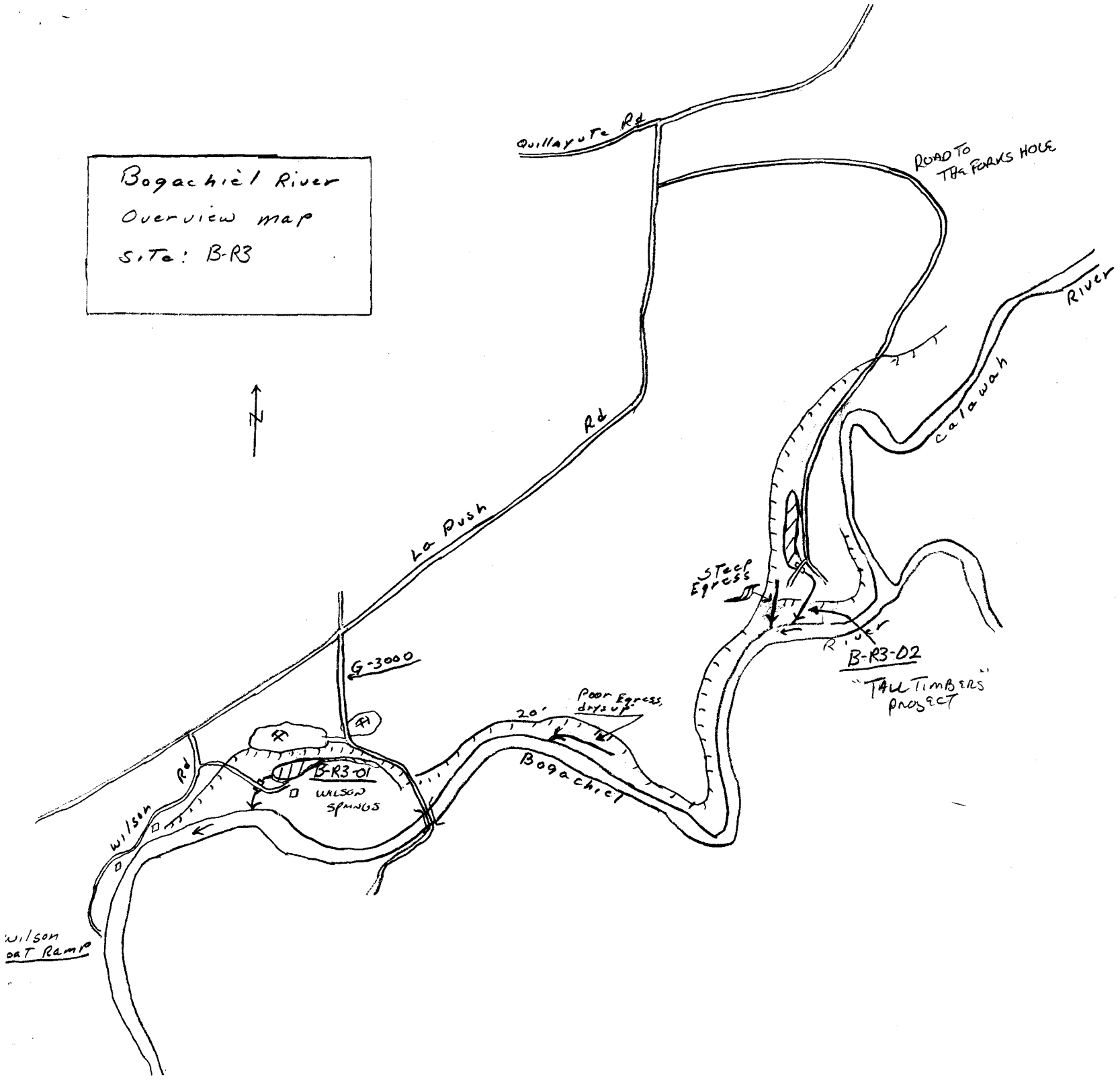
DATE: 9/26/02 **OBSERVER:** Powell
There is a wood duck nest box at this site. Grate was clear.

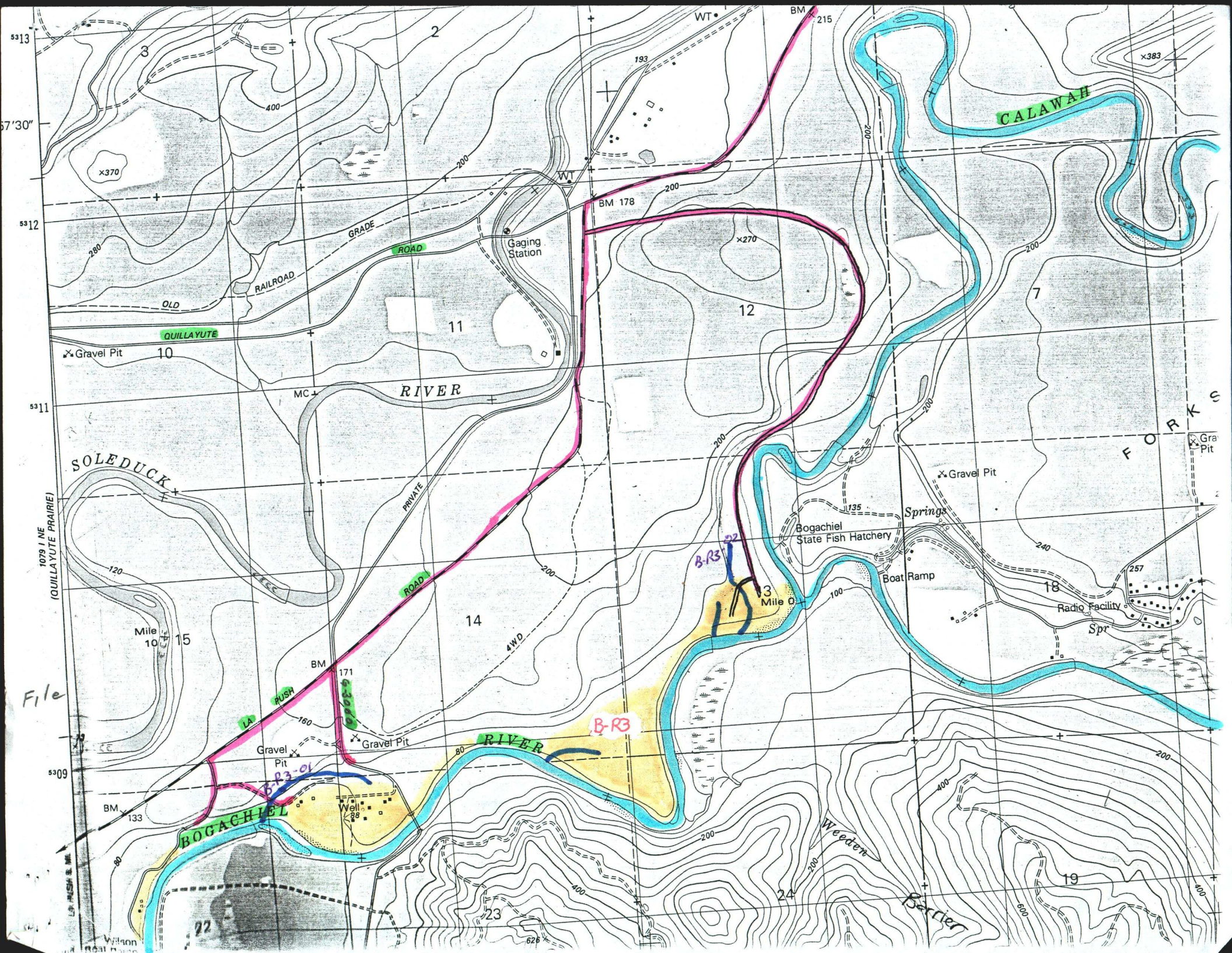
DATE: 3/28/03 **OBSERVER:** King
Looks good. Cleared a small amount of debris off of grate.

DATE: 11/6/03 **OBSERVER:** Nettnin

Project looks good no apparent beaver activity. Baffles in place and appear to be clean.


La Push Rd
Wilson Rd
Bogachiel River
site: B-R3
Channel B-R3-01
Wilson Springs
G-3000
185 m
B-R3-01
20m
130m
150
control
Isolated Pond
30-40'
60m
free flowing gravel
40m
slow, ponded
70m
incised channel
Bogachiel River


Bogachiel River
Overview map
Site: B-R3
Quillayute Rd
Road to The Forks Hole
River
Calawah
La Push Rd
N
Steep Egress
G-3000
B-R3-02
"Tall Timbers" project
Poor Egress, dry sum.
20'
B-R3-01
Wilson Springs
Bogachiel
Wilson Rd
Wilson Boat Ramp


CALAWAH
FORKS
QUILLAYUTE
RIVER
SOLEDUCK
RIVER
BOGACHIEL
RIVER
Gaging Station
Gravel Pit
Bogachiel State Fish Hatchery
Springs
Boat Ramp
Radio Facility
Mile 0
Mile 10
Well
Weeden
Bertrier
RAILROAD GRADE
OLD
ROAD
PRIVATE
4WD
RUSH
LA
BM 215
BM 178
BM 171
BM 133
WT
MC
B-R3
B-R3-01
1079 I NE (QUILLAYUTE PRAIRIE)